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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/757,083

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Kensuke Sawada

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EXAMINER

FOTAKIS, ARISTOCRATIS

ART UNIT

PAPER NUMBER

2611

MAIL DATE

DELIVERY MODE

12/27/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/757,083

Applicant(s)

SAWADA, KENSUKE

Examiner

Aristocratis Fotakis

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11/21/2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3 - 4 and 6 - 7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6 is/are allowed.
- 6) ☒ Claim(s) 3 - 4 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 3 – 4 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 3 - 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mohseni et al. (US 6,535,562) in view of Chouly (US 5,504,775).

Re claim 3, Mohseni teaches of a digital baseband modulation apparatus, comprising: a spread modulation unit (complex multiplier, #102, Fig.8) for complex spreading an I component signal (I data signal, Fig.8, #12a) and a Q component signal (Q data signal, Fig.8, #12b) of a transmit signal by using spreading code for I axis (I PN code, Fig.8, #22a) and spreading code for Q axis (Q PN code, Fig.8, #22b) so as to output an output signal comprising an output I component signal (#32a, Fig.8) and an output Q component signal (#32b, Fig.8); and an amplitude control unit that decreases the amplitude component of the output signal when the output signal is output on the I axis or on the Q axis (Col 7, Lines 40 – 55, Fig.12A to 12B); and a quadrature modulation unit (Fig.4). However, Mohseni does not teach of a receiver that performs the reverse procedure of the signal being transmitted.

Chouly teaches of a multi-user spread spectrum transmitter where the receiver performs the reverse operations to those performed at the transmitter end (Col 4, Lines 64 – 65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a CDMA receiver that would perform the transmitting process in a reverse order by multiplying the amplitude of the signal component by the

inverse of the amplitude reduction factor of Mohseni to reproduce the signal for simplicity reasons.

Re claim 4, Mohseni and Chouly teach all the limitations of claim 3 as discussed as well as Chouly teaching of a receiver performing reverse operation of a CDMA transmitter as discussed above. Mohseni teaches of the spread modulation unit further comprising a phase rotation unit that rotates the phase of the complex spread signal according to a control from the outside (Col 5, Lines 47 – 64, Fig.6A to Fig.6B).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a CDMA receiver of Chouly that would perform the transmitting process in a reverse order by performing the reverse of phase rotation of the transmitting apparatus of Nagatani to reproduce the signal for simplicity reasons.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mohseni in view of Yanagi (6,625,173) and in further view of Chouly (US 5,504,775).

Re claim 7, Mohseni teaches of a digital baseband modulation apparatus, comprising: a spread modulation unit (complex multiplier, #102, Fig.8) for complex spreading an I component signal (I data signal, Fig.8, #12a) and a Q component signal (Q data signal, Fig.8, #12b) of a transmit signal by using spreading code for I axis (I PN code, Fig.8, #22a) and spreading code for Q axis (Q PN code, Fig.8, #22b) so as to

output an output signal comprising an output I component signal (#32a, Fig.8) and an output Q component signal (#32b, Fig.8); and an amplitude control unit that decreases the amplitude component of the output signal when the output signal is output on the I axis or on the Q axis (Col 7, Lines 40 – 55, Fig.12A to 12B); and a quadrature modulation unit (Fig.4). However, Mohseni does not teach of a system applied to multiple users and does not teach of a receiver that performs the reverse procedure of the signal being transmitted.

Oishi teaches of a digital baseband modulation apparatus, comprising a plurality of pairs of a spread modulation part (Code-multiplexed signal generator, 71₁ – 71_n, Fig.2) and an amplitude conversion unit (signal-peak suppression unit, Fig.2), each pair receiving a transmit signal (Fig.2, D₁ – D_n), wherein the spread modulation part complex spreads an I component signal (D_{i1}-D_{in}, Fig.2) and a Q component signal (D_{q1}-D_{qn}, Fig.2) of the transmit signal by using spreading code for I axis (C_{i1}-C_{in}, Fig.2) and spreading code for Q axis (C_{q1}-C_{qn}, Fig.2) so as to output an output signal comprising an output I component signal (output to 81_i) and an output Q component signal (output to 81_q) (Col 7, Lines 64 – 67 to Col 8, Lines 1 – 36, Fig.2); and the amplitude conversion unit decreases the amplitude component of the output signal by a damping factor α when the output signal is output on the I axis or on the Q axis (Col 8, Lines 37 – 67 to Col 9, Lines 1 - 24, Fig.2 - 4); the digital baseband modulation apparatus further comprising: a duplexing unit (#55, quadrature modulator, Fig.2) for duplexing output signals output from the amplitude conversion parts (#52, Fig.2) by linearly adding the output signals. Oishi also teaches of a receiver which includes a separating unit that

spreads the IQ signal output into separated IQ signals; and despread demodulation units that receive each pair of the separated IQ signals (Fig.26).

However, Oishi does not specifically teach of a receiver that performs the reverse procedure, of his invention, of the signal being transmitted.

Chouly teaches of a multi-user spread spectrum transmitter where the receiver performs the reverse operations to those performed at the transmitter end (Col 4, Lines 64 – 65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a multi user system to enhance the capacity and performance of CDMA. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a CDMA receiver that would perform the transmitting process in a reverse order by multiplying the amplitude of the signal component by the inverse of the amplitude reduction factor of Mohseni, perform the reverse operation of Oishi multi-user transmitting apparatus to reproduce the signal for simplicity reasons.

Allowable Subject Matter

Claim 6 is allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 6:30 - 4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AF


CHIEH M. FAN
SUPERVISORY PATENT EXAMINER